

FORM PTO-1390
(REV. 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

Beiersdorf 702-KGB

U.S. APPLICATION NO. (If known, see 37 CFR 1.5

09/744642

INTERNATIONAL APPLICATION NO.

PCT/EP99/05243 ✓

INTERNATIONAL FILING DATE

22.Juli 1999 (22.07.99)

PRIORITY DATE CLAIMED

1. August 1998 (01.08.98)

TITLE OF INVENTION

EMULSIFIER-FREE FINELY DISPERSED SYSTEMS OF THE OIL-IN-WATER AND WATER-IN-OIL TYPE

APPLICANT(S) FOR DO/EO/US

Heinrich GERS-BARLAG and Anja MULLER ✓

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☐ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information: -Copy of International Search Report
 -Copy of PCT/EP99/05243 = WO 00/07549 (First Page Only)
 -Copy of XP-000853905
 -Copy of XP-000853904
 -Copy of DE 43 03 983 A1
 -Copy of FR 2 746 301-A1

U.S. APPLICATION NO. (if known) (see 37 CFR 1.5)

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INTERNATIONAL APPLICATION NO.
PCT/EP99/05243

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21. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):**Neither international preliminary examination fee (37 CFR 1.482)
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO
and International Search Report not prepared by the EPO or JPO. **\$1000.00**International preliminary examination fee (37 CFR 1.482) not paid to
USPTO but International Search Report prepared by the EPO or JPO **\$860.00**International preliminary examination fee (37 CFR 1.482) not paid to USPTO
but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **\$710.00**International preliminary examination fee (37 CFR 1.482) paid to USPTO
but all claims did not satisfy provisions of PCT Article 33(1)-(4) **\$690.00**International preliminary examination fee (37 CFR 1.482) paid to USPTO
and all claims satisfied provisions of PCT Article 33(1)-(4) **\$100.00****ENTER APPROPRIATE BASIC FEE AMOUNT =****CALCULATIONS PTO USE ONLY**

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$
Total claims	8 - 20 =	0	x \$18.00	\$ 0
Independent claims	1 - 3 =	0	x \$80.00	\$ 0
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$

TOTAL OF ABOVE CALCULATIONS =

\$ 860.00

☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above
are reduced by 1/2.

\$

SUBTOTAL =

\$ 860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$

TOTAL NATIONAL FEE =

\$ 860.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

\$

TOTAL FEES ENCLOSED =

\$

**Amount to be
refunded:**

\$

charged:

\$ 860.00

- a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.
- b. ☒ Please charge my Deposit Account No. 14-1263 in the amount of \$ 860.00 to cover the above fees.
A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 14-1263. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card
information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR
1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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33,141

REGISTRATION NUMBER

09/744642

JC92 Rec'd PCT/PTO 26 JAN 2001

Beiersdorf 702-KGB
6713-Dr. Rs-ar

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS : Dr. Heinrich GERS-BARLAG and Anja MÜLLER
SERIAL NO. : To Be Assigned
FILED : Herewith
FOR : EMULSIFIER-FREE FINELY DISPERSED SYSTEMS
OF THE OIL-IN-WATER AND WATER-IN-OIL TYPE
ART UNIT : To Be Assigned
EXAMINER : To Be Assigned

January 26, 2001

Hon. Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

SIR:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Insert as the first sentence: -- This application is a 371 of PCT/EP99/05243, which was
filed on July 22, 1999. --

IN THE CLAIMS:

Claims 3-8, line 1 in each, delete "one of the preceding claims" and substitute --Claim 1--

REMARKS

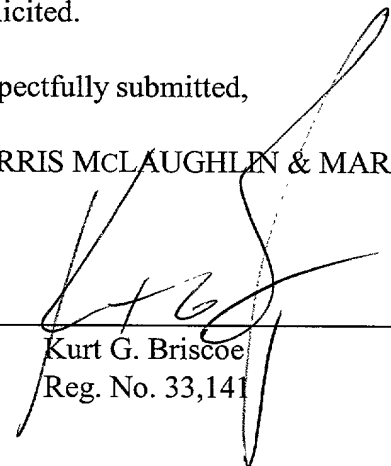
The amendments above amend the specification to include reference to the international application, and amend the claims to delete multiple dependencies.

Early and favorable action is earnestly solicited.

Respectfully submitted,

NORRIS McLAUGHLIN & MARCUS, P.A.

By


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Patent Claims pending as a result of Preliminary Amendment dated January 26, 2001

1. Cosmetic or dermatological preparations, which are finely dispersed systems of the oil-in-water or water-in-oil type, comprising
 1. an oil phase,
 2. an aqueous phase ,
 3. boron nitride which has both hydrophilic and lipophilic properties, i.e. has amphiphilic character, and is dispersible both in water and in oil, and
 4. at most 0.5% by weight of one or more emulsifiers.
2. Preparations according to Claim 1, characterized in that they are emulsifier-free.
3. Preparations according to Claim 1, characterized in that further cosmetic or pharmaceutical auxiliaries, additives and/or active ingredients are present.
4. Preparations according to Claim 1, characterized in that the content of boron nitride is between 0.1% by weight and 30% by weight, based on the total weight of the preparations.
5. Preparations according to Claim 1, characterized in that the average particle diameter of the boron nitride particles used is less than 20 μm , particularly advantageously less than 15 μm .
6. Preparations according to Claim 1, characterized in that, in addition to boron nitride, further pigments are present, in particular modified polysaccharides and/or microfine polymer particles and/or micronized, inorganic pigments which are chosen from the group of amphiphilic metal oxides, in particular from the group consisting of titanium dioxide, zinc oxide, iron oxides or iron mixed oxides, silicon dioxide or silicates, where the pigments can be present either individually or as a mixture.
7. Preparations according to Claim 1, comprising one or more additives or active ingredients selected from the group consisting of antioxidants and/or UV protectants.

8. Preparations according to Claim 1, comprising one or more additives or active ingredients selected from the group consisting of astringents and/or antimicrobially effective substances and/or substances effective against acne.

Beiersdorf Aktiengesellschaft
Hamburg

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Description

Emulsifier-free finely dispersed systems of the
oil-in-water and water-in-oil type

10 The present invention relates to emulsifier-free finely dispersed systems of the oil-in-water and water-in-oil type, preferably as cosmetic or dermatological preparations.

 Emulsions are generally taken to mean heterogeneous systems which consist of two liquids which are immiscible or have only limited miscibility with one
15 another, which are usually referred to as phases. In an emulsion, one of the two liquids is dispersed in the form of very fine droplets in the other liquid.

 If the two liquids are water and oil and if oil droplets are finely dispersed in water, then this is an oil-in-water emulsion (OW emulsion, e.g. milk). The basic character of a OW emulsion is defined by the water. In a water-in-oil emulsion (W/O
20 emulsion, e.g. butter), the principle is reversed, the base character here being determined by the oil.

 In order to achieve permanent dispersion of one liquid in another, emulsions in the traditional sense require the addition of an interface-active ingredient (emulsifier). Emulsifiers have an amphiphilic molecular structure,
25 consisting of a polar (hydrophilic) and a nonpolar (lipophilic) molecular moiety, which are spatially separate from one another. In simple emulsions, finely dispersed droplets of one phase, surrounded by an emulsifier shell, (water droplets in W/O emulsions or lipid vesicles in OW emulsions) are present in the second phase. Emulsifiers lower the interfacial tension between the phases by positioning
30 themselves at the interface between the two liquids. At the phase boundary, they form oil/water interfacial films, which prevent irreversible coalescence of the droplets. Emulsions are frequently stabilized using emulsifier mixtures.

 Traditional emulsifiers can, depending on their hydrophilic molecular moiety, be divided into ionic (anionic, cationic and amphoteric) and nonionic:

- 35 • The most well known example of an anionic emulsifier is soap, which is usually the term used for the water-soluble sodium salts or potassium salts of saturated or unsaturated higher fatty acids.

- Important examples of cationic emulsifiers are quaternary ammonium compounds.
- The hydrophilic molecular moiety of nonionic emulsifiers frequently consists of glycerol, polyglycerol, sorbitans, carbohydrates and polyoxyethylene glycols, and, in most cases, is linked to the lipophilic molecular moiety via ester and ether bonds. The lipophilic molecular moiety usually consists of fatty alcohols, fatty acids or isofatty acids.

By varying the structure and the size of the polar and nonpolar molecular moiety, the lipophilicity and hydrophilicity of the emulsifiers can be varied within wide limits.

A decisive factor for the stability of an emulsion is the correct choice of emulsifiers. The characteristics of all substances present in the system are to be taken into consideration. In the case of, for example, skin care emulsions, polar oil components and, for example, UV filters lead to instability. As well as the emulsifiers, therefore, other stabilizers are also used which, for example, increase the viscosity of the emulsion and/or act as a protective colloid.

Emulsions are an important type of product in the field of cosmetic and/or dermatological preparations.

Cosmetic preparations are essentially used for skin care. The main aim of skin care in the cosmetics sense is to strengthen or rebuild the skin's natural function as a barrier against environmental influences (e.g. dirt, chemicals, microorganisms) and against the loss of endogenous substances (e.g. water, natural fats, electrolytes). If this function becomes impaired, increased resorption of toxic or allergenic substances or infection by microorganisms may result, leading to toxic or allergic skin reactions.

Another aim of skin care is to compensate for the loss by the skin of grease and water caused by daily washing. This is particularly important if the natural regeneration ability is inadequate. Furthermore, skin care products should protect against environmental influences, in particular against sun and wind, and delay skin ageing.

Cosmetic preparations are also used as deodorants. Such formulations are used to control body odour which is produced when fresh sweat, which is in itself odourless, is decomposed by microorganisms.

Medicinal topical compositions usually comprise one or more medicaments in an effective concentration. For the sake of simplicity, in order to distinguish clearly between cosmetic and medicinal use and corresponding products,

reference is made to the legal provisions in the Federal Republic of Germany (e.g. Cosmetics Regulation, Foods and Drugs Act).

The use of customary emulsifiers in cosmetic or dermatological preparations is in itself acceptable. Nevertheless, emulsifiers, like ultimately any
5 chemical substance, may in certain circumstances cause allergic reactions or reactions based on oversensitivity of the user.

For example, it is known that certain light dermatoses are triggered by certain emulsifiers, but also by a variety of fats and simultaneous exposure to sun-
light. Such light dermatoses are also-called "Mallorca acne". There has thus been no
10 lack of attempts to reduce the amount of customary emulsifiers to a minimum, in the ideal case even to zero.

A reduction in the required amount of emulsifier can, for example, be achieved by taking advantage of the fact that very finely divided solid particles have an additional stabilizing action. The solid substance accumulates at the oil/water
15 phase boundary in the form of a layer, as a result of which coalescence of the dispersed phases is prevented. It is not the chemical properties of the solid particles which are of fundamental importance here, but the surface properties.

Around 1910, Pickering prepared paraffin/water emulsions which were stabilized merely by the addition of various solids, such as basic copper sulphate,
20 basic iron sulphate or other metal sulphates. This type of emulsion is thus also referred to as a Pickering emulsion. For this type of emulsion, Pickering postulated the following conditions:

- (1) The solid particles are only suitable for stabilization if they are significantly smaller than the droplets of the inner phase and do not have a tendency to
25 form agglomerates.
- (2) An important property of an emulsion-stabilizing solid is also its wettability. I.e. in order to stabilize an O/W emulsion, the solid has, for example, to be more readily wettable by water than by oil.

The original forms of Pickering emulsions initially surfaced, as it were, as
30 undesired secondary effects in a variety of industrial processes, such as, for example, in secondary oil recovery, the extraction of bitumen from tar sand and other separation processes involving two immiscible liquids and fine, dispersed solid particles. These are generally W/O emulsions which are stabilized by mineral solids. Accordingly, investigation of corresponding systems, such as, for example, the
35 oil/water/soot or oil/water/slate dust systems was initially the focus of research activity.

Basic experiments have shown that one characteristic of a Pickering emulsion is that the solid particles are arranged at the interface between the two liquid phases where they form, as it were, a mechanical barrier against the mixing of the liquid droplets.

5 It is a relatively new technical development to use Pickering emulsions as a base for cosmetic or dermatological preparations.

One way of achieving solids stabilization in a cosmetic or dermatological preparation is, according to May-Alert (*Pharmazie in unserer Zeit [Pharmacy in our time]*, Vol. 15, 1986, No. 1, 1-7) for example, to use emulsifier mixtures which contain
10 both anionic and cationic surfactants. Since mixing anionic and cationic surfactants always produces precipitates of insoluble, electroneutral compounds, deliberate precipitation of these neutral surfactants in the oil/water interface makes it possible to achieve additional solids stabilization in the sense of a Pickering emulsion.

EP-A-0 686 391 describes water-in-oil emulsions which are free from
15 surface-active ingredients and are stabilized only by solids. Stabilization is achieved here using spherical polyalkylsilsesquioxane particles which have a diameter of from 100 nm up to 20 µm. According to the above, these emulsions can be referred to as Pickering emulsions.

In addition to the described Pickering emulsions, the prior art describes
20 further emulsifier-free, finely dispersed cosmetic or dermatological preparations which are generally referred to as hydrodispersions. Hydrodispersions are dispersions of a liquid, semi-solid or solid internal (discontinuous) lipid phase in an outer aqueous (continuous) phase.

In the case of hydrodispersions of a liquid lipid phase in an outer
25 aqueous phase, stability can be ensured, for example, by constructing, in the aqueous phase, a gel structure in which the lipid droplets are stably suspended. DE-A 44 25 268 describes stable finely dispersed, emulsifier-free cosmetic or dermatological preparations of the oil-in-water type, which, in addition to one oil phase and one water phase, comprise one or more thickeners from the group
30 consisting of acrylic polymers, polysaccharides and alkyl ethers thereof, where these thickeners must not cause any lowering of the interfacial tension.

Using similar hydrodispersions as a basis, DE-A 43 03 983 discloses cosmetic or dermatological light protection formulations which are essentially free from emulsifiers, and which have inorganic micropigments incorporated into the lipid
35 phase of the hydrodispersion, which act as UV filter substances.

The object of the present invention was to extend the prior art to include cosmetic or dermatological preparations in which it is not necessary to use any emulsifiers of a conventional type.

Surprisingly, this object is achieved by

- 5 cosmetic or dermatological preparations which are finely dispersed systems of the oil-in-water or water-in-oil type, comprising
1. an oil phase,
 2. an aqueous phase
 3. boron nitride which has both hydrophilic and lipophilic properties, i.e. has
 - 10 amphiphilic character, and positions itself at the water/oil interface, and
 4. at most 0.5% by weight of one or more emulsifiers

and also

optionally comprising further cosmetic or pharmaceutical auxiliaries, additives and/or active ingredients.

- 15 It is particularly advantageous according to the invention if the preparations comprise significantly less than 0.5% by weight of one or more emulsifiers or are even entirely emulsifier-free.

- The preparations according to the invention are mixtures of oils or oil-soluble substances and water or water-soluble components, which are stabilized by
- 20 adding boron nitride particles and which do not have to contain an emulsifier in the traditional sense. Stabilization is achieved by the boron nitride particles attaching themselves to the droplets of the disperse phase and forming, as it were, a mechanical barrier, which prevents coalescence of the droplets.

- The preparations according to the invention are extremely satisfactory
- 25 preparations in every respect, whose aqueous/fatty phase ratio can be varied within extraordinarily wide limits and, in addition, have the advantage over the prior art that large amounts of oils can be stably incorporated in water. It was also surprising that by following the teaching disclosed here as regards technical handling, it is possible to prepare water-in-oil Pickering emulsions and also oil-in-water Pickering emulsions.

- 30 For the purposes of the present invention, the boron nitrides listed below, for example, are advantageous:

Trade name	available from
Boron Nitride Powder	Advanced Ceramics
35 Boron Nitride Powder	Sintec Keramik
Ceram Blanche	Kawasaki

HCST Boron Nitride	Stark
Très BN®	Carborundum
Wacker-Bornitrid BNP	Wacker-Chemie

5 It is advantageous to choose the average particle diameter of the boron nitride particles used to be less than 20 μm , particularly advantageously less than 15 μm .

 Within the meaning of the present invention, Pickering emulsions are likewise advantageously stabilized by boron nitride particles which have been
10 surface treated ("coated") to repel water, the intention being for the amphiphilic character to be simultaneously formed or retained.

 An advantageous coating of the boron nitride particles consists of dimethylpolysiloxane (also: dimethicone), a mixture of completely methylated, linear siloxane polymers which have been terminally blocked with trimethylsiloxy units. The
15 boron nitride particles treated with dimethicone and obtainable from Carborundum under the trade name Très BN® UHP 1106, for example, are advantageous.

 Also advantageous is a coating of the boron nitride particles with polymethyl hydrogen siloxane, a linear polysiloxane, which is also referred to as methicone. Advantageous boron nitride particles treated with methicone are, for
20 example, those obtainable from Carborundum under the trade name Très BN® UHP 1107.

 It is also advantageous, but not obligatory, to combine the amphiphilic boron nitride particles according to the invention with further amphiphilic pigments which may optionally also contribute to the stabilization of the Pickering emulsions.

25 Such pigments are, for example, micronized inorganic pigments chosen from the group of amphiphilic metal oxides, in particular from the group consisting of titanium dioxide, zinc oxide, silicon dioxide or silicates (e.g. talc), it being possible for the metal oxides to be present either individually or as a mixture. In this connection, it is essentially unimportant in which of the potentially naturally occurring modifications
30 the amphiphilic metal oxides used are present.

 It is advantageous to choose the average particle diameter of the pigments used for the combination with boron nitrides to be between 1 nm and 200 nm, particularly advantageously between 5 nm and 100 nm.

 It is advantageous for the purposes of the present invention to combine
35 the amphiphilic boron nitride particles according to the invention with untreated, virtually pure pigment particles, in particular with those which can also be used as

dye in the food industry and/or as absorber of UV radiation in sunscreens. Examples of advantageous pigments are the zinc oxide pigments which are available from Merck and those which are available under the trade names Zinkoxid neutral from Haarmann & Reimer or NanoX from Harcros Chemical Group.

5 According to the invention, it is also advantageous to combine boron nitride particles with inorganic pigments which have been surface-treated (coated) to repel water, the intention being for an amphiphilic character of these pigments to be formed or retained. This surface-treatment may involve providing the pigments with a thin hydrophobic layer by processes known per se.

10 One such process, which is described below using titanium dioxide as an example, consists in, for example, producing the hydrophobic surface layer according to the following reaction



15 n and m are stoichiometric parameters to be used as desired, and R and R' are the desired organic radicals. Particularly advantageous combination partners are TiO_2 pigments, for example those coated with aluminium stearate and available under the trade name MT 100 T from TAYCA.

20 Another advantageous coating of the combination partners consists of dimethylpolysiloxane (also: dimethicone), a mixture of completely methylated, linear siloxane polymers which have been terminally blocked with trimethylsiloxy units. The combination of boron nitrides with zinc oxide pigments which have been coated in this way is particularly advantageous for the purposes of the present invention.

25 It is also advantageous if the inorganic pigments used in addition to boron nitride have been coated with a mixture of dimethylpolysiloxane, in particular dimethylpolysiloxane having an average chain length of from 200 to 350 dimethylsiloxane units, and silica gel, which is also referred to as simethicone. It is particularly advantageous if the inorganic pigments have been additionally coated
30 with aluminium hydroxide or hydrated aluminium oxide (also: alumina, CAS No.: 1333-84-2). Particularly advantageous combination partners are titanium dioxides which have been coated with simethicone and alumina, it also being possible for the coating to comprise water. One example thereof is the titanium dioxide obtainable under the trade name Eusolex T2000 from Merck.

35 Also advantageous for the purposes of the present invention is the combination of boron nitrides with a mixture of different inorganic, amphiphilic

pigment types both within a crystal, for example as iron mixed oxide or talc (magnesium silicate), and also by mixing two or more metal oxide types within a preparation. Particularly advantageous combination partners are magnesium silicates, for example those obtainable under the trade name Talkum Micron from
 5 Grolmann.

The amphiphilic boron nitride particles according to the invention can also advantageously be combined with further pigments, for example with titanium dioxide pigments which have been coated with octylsilanol, and/or with silicon dioxide particles which have been surface-treated to repel water. Silicon dioxide
 10 particles which are suitable for the combination are, for example, spherical polyalkylsilsesquioxane particles, as mentioned in European Laid-Open Specification 0 686 391. Such polyalkylsilsesquioxane particles are, for example, obtainable under the trade names Aerosil R972 and Aerosil 200V from Degussa.

The amphiphilic boron nitride particles are further advantageously
 15 combined with microfine polymer particles which are present in the preparation in the form of solids. Favourable combination partners for the purposes of the present invention are, for example, polycarbonates, polyethers, polyethylene, polypropylene, polyvinyl chloride, polystyrene, polyamides, polyacrylates and the like.

Combination partners suitable according to the invention are, for
 20 example, microfine polyamide particles, in particular those obtainable under the trade name SP-500 from TORAY. Also advantageous are polyamide 6 (also: nylon 6) or polyamide 12 (also: nylon 12) particles. Polyamide 6 is the polyamide [poly(ϵ -caprolactam)] built up from ϵ -aminocaproic acid (6-aminohexanoic acid) or ϵ -caprolactam, and polyamide 12 is a poly(ϵ -laurolactam) of ϵ -laurolactam.
 25 Advantageous for the purposes of the present invention are, for example, Orgasol® 1002 (Polyamide 6) and Orgasol® 2002 (Polyamide 12) from ELF ATOCHEM.

Further advantageous microfine polymer particles which are suitable for the combination with the boron nitride particles according to the invention are
 30 microfine polymethacrylates. Such particles are available, for example, under the trade name POLYTRAP® from DOW CHEMICAL.

It is particularly advantageous, although not obligatory, if the microfine polymer particles used as combination partners have been surface-coated. This surface treatment can involve providing the polymer particles with a thin hydrophilic
 35 layer by processes known per se. Advantageous coatings consist, for example, of titanium dioxide (TiO₂), zirconium dioxide (ZrO₂) or else further polymers, such as,

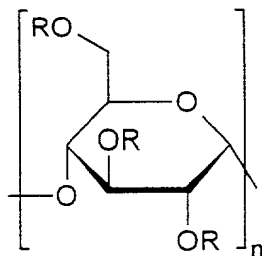
for example, polymethyl methacrylate. Particularly advantageous microfine polymer particles for the purposes of the present invention are, for example, those obtainable by the process described in US Patent Specification 4,898,913 for the hydrophilic coating of hydrophobic polymer particles.

5 The average particle diameter of the microfine polymer particles used as combination partners is preferably chosen to be less than $100\text{ }\mu\text{m}$, particularly advantageously to be less than $50\text{ }\mu\text{m}$. Here, it is essentially unimportant in which form (platelets, rods, spherules etc.) the polymer particles used are present.

10 The amphiphilic boron nitride particles according to the invention are also preferably combined with amphiphilic modified polysaccharides which do not exhibit thickening properties.

Such amphiphilic polysaccharides are obtainable, for example, by reacting starch with mono-, bi- or polyfunctional reagents or oxidizing agents in reactions which proceed in a predominantly polymer-analogous manner.

15 These reactions are based essentially on modifications of the hydroxyl groups of the polyglucans by etherification, esterification or selective oxidation. This produces, for example, so-called starch ethers and starch esters of the general structural formula

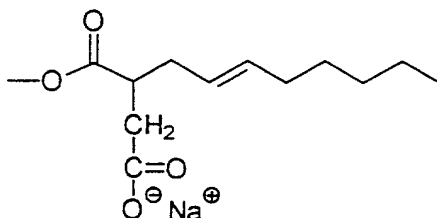


structural formula (I)

30 in which R can, for example, be a hydrogen and/or an alkyl and/or aralkyl radical (in the case of the starch ethers) or a hydrogen and/or an organic and/or inorganic acid radical (in the case of the starch esters). Starch ethers and starch esters are advantageous combination partners for the purposes of the present invention.

35 It is particularly advantageous to combine the boron nitride particles according to the invention with starch ethers, e.g. with those obtainable by etherifying starch with tetramethylolacetylenediurea and which are referred to as Amylum non mucilaginosum (nonswelling starch).

Also particularly advantageous is the combination of boron nitride particles according to the invention with starch esters and/or salts thereof, for example with sodium and/or aluminium salts of starch half-esters which have low degrees of substitution, in particular with sodium starch n-octenyl succinate of the structural formula (I), in which R is characterized by the following structure



and which is obtainable e.g. under the trade name Amiogum® 23 from CERESTAR, and also with aluminium starch octenyl succinate, in particular with those available under the trade names Dry Flo® Elite LL and Dry Flo® PC from CERESTAR.

It is advantageous to choose the average particle diameter of the modified polysaccharides used for the combination with the amphiphilic boron nitride particles according to the invention to be less than 20 μm , particularly advantageously less than 15 μm .

The list of said modified polysaccharides which can be combined with the amphiphilic boron nitride particles is not of course intended to be limiting. Modified polysaccharides which are advantageous combination partners for the purposes of the present invention are obtainable by numerous methods, both chemical and physical in nature, which are known per se. For the preparation of such polysaccharides, novel methods are in principle also conceivable. In this connection, it is essential that the modified polysaccharides exhibit amphiphilic properties and that they do not have a thickening action.

In all of the above cases it is advantageous to choose the total concentration of all the pigments to be greater than 0.1% by weight, particularly advantageously between 0.1% and 30% by weight, based on the total weight of the preparations, where the concentration of boron nitride is to be chosen, for the purposes of the present invention, preferably from the range 0.1% by weight to 30% by weight, advantageously 0.5% by weight to 10% by weight, likewise based on the total weight of the preparations.

The Pickering emulsions according to the invention can be used as bases for cosmetic or dermatological formulations. These can have the customary composition and be used, for example, for the treatment and care of the skin, as lip care product, as deodorant and as make-up or make-up remover product in decorative cosmetics or as light protection preparation. For use, the cosmetic and dermatological preparations according to the invention are applied to the skin in sufficient amount in the manner customary for cosmetics.

Accordingly, for the purposes of the present invention, cosmetic or topical dermatological compositions may, depending on their structure, be used, for example, as skin-protection cream, cleansing milk, sunscreen lotion, nutrient cream, day or night cream, etc. Where appropriate, it is possible and advantageous to use the compositions according to the invention as bases for pharmaceutical formulations.

The cosmetic and dermatological preparations according to the invention may comprise cosmetic auxiliaries, as customarily used in such preparations, e.g. preservatives, bactericides, perfumes, antifoams, dyes, pigments which have a colouring effect, thickeners, plasticizers, moisturizing and/or moisture-retaining substances, fats, oils, waxes or other customary constituents of a cosmetic or dermatological formulation, such as alcohols, polyols, polymers, foam stabilizers, electrolytes, organic solvents or silicone derivatives.

A surprising property of the preparations according to the invention is that they are very good vehicles for cosmetic or dermatological active ingredients into the skin, advantageous active ingredients being antioxidants which are able to protect the skin against oxidative stress.

According to the invention, the preparations advantageously comprise one or more antioxidants. Antioxidants which are favourable, but nevertheless optional, are all antioxidants which are suitable or customary for cosmetic and/or dermatological applications. Here, it is advantageous to use antioxidants as the sole active ingredient class whenever, for example, a cosmetic or dermatological application is at the fore, such as e.g. the control of oxidative stressing of the skin. It is, however, also favourable to provide the stick preparations according to the invention with a content of one or more antioxidants whenever the preparations are to serve another purpose, e.g. as deodorants or sunscreens.

The antioxidants are particularly advantageously selected from the group consisting of amino acids (e.g. glycine, histidine, tyrosine, tryptophan) and their derivatives, imidazoles, (e.g. urocanic acid) and their derivatives, peptides, such

as D,L-carnosine, D-carnosine, L-carnosine and their derivatives (e.g. anserine), carotenoids, carotenes (e.g. α -carotene, β -carotene, lycopene) and their derivatives, chlorogenic acid and its derivatives, lipoic acid and its derivatives (e.g. dihydrolipoic acid), aurothioglucose, propylthiouracil and other thiols (e.g. thioredoxin, glutathione, cysteine, cystine, cystamine and their glycosyl, N-acetyl, methyl, ethyl, propyl, amyl, butyl and lauryl, palmitoyl, oleyl, γ -linoleyl, cholesteryl and glyceryl esters) and their salts, dilauryl thiodipropionate, distearyl thiodipropionate, thiodipropionic acid and its derivatives (esters, ethers, peptides, lipids, nucleotides, nucleosides and salts) and sulfoximine compounds (e.g. buthionine sulfoximines, homocysteine sulfoximine, buthionine sulphones, penta-, hexa-, hepta-thionine sulfoximines) in very low tolerated doses (e.g. pmol to μ mol/kg), and also (metal) chelating agents (e.g. α -hydroxyfatty acids, palmitic acid, phytic acid, lactoferrin), α -hydroxy acids (e.g. citric acid, lactic acid, malic acid), humic acid, bile acid, bile extracts, bilirubin, biliverdin, EDTA, EGTA and their derivatives, unsaturated fatty acids and their derivatives (e.g. γ -linolenic acid, linoleic acid, oleic acid), folic acid and its derivatives, ubiquinone and ubiquinol and their derivatives, vitamin C and derivatives (e.g. ascorbyl palmitate, Mg ascorbyl phosphate, ascorbyl acetate), tocopherols and derivatives (e.g. vitamin E acetate), vitamin A and derivatives (vitamin A palmitate) and coniferyl benzoate of benzoin, rutinic acid and its derivatives, α -glycosylrutin, ferulic acid, furfurylidene-glucitol, carnosine, butylated hydroxytoluene, butylated hydroxyanisole, nordihydroguaiac acid, nordihydroguaiaretic acid, trihydroxybutyrophenone, uric acid and its derivatives, mannose and its derivatives, zinc and its derivatives (e.g. ZnO, ZnSO₄), selenium and its derivatives (e.g. selenomethionine), stilbenes and their derivatives (e.g. stilbene oxide, trans-stilbene oxide), and the derivatives (salts, esters, ethers, sugars, nucleotides, nucleosides, peptides and lipids) of said active ingredients which are suitable according to the invention.

The amount of the abovementioned antioxidants (one or more compounds) in the preparations according to the invention is preferably from 0.001 to 30% by weight, particularly preferably from 0.05 to 20% by weight, in particular 1 - 10% by weight, based on the total weight of the preparation.

If vitamin E and/or its derivatives are used as the antioxidant or antioxidants, their respective concentrations are advantageously chosen from the range of 0.001 - 10% by weight, based on the total weight of the formulation.

If vitamin A or vitamin A derivatives or carotenes or their derivatives are used as the antioxidant or antioxidants, their respective concentrations are

advantageously chosen from the range of 0.001 - 10% by weight, based on the total weight of the formulation.

According to the invention, the active ingredients (one or more compounds) can also very advantageously be chosen from the group of lipophilic active ingredients, in particular from the following group:

Acetylsalicylic acid, atropine, azulene, hydrocortisone and derivatives thereof, e.g. hydrocortisone-17 valerate, vitamins, e.g. ascorbic acid and derivatives thereof, vitamins of the B and D series, very favourably vitamin B₁, vitamin B₁₂ and vitamin D₁, but also bisabolol, unsaturated fatty acids, namely the essential fatty acids (often also-called vitamin F), in particular gamma-linolenic acid, oleic acid, eicosapentaenoic acid, docosahexanoic acid and derivatives thereof, chloramphenicol, caffeine, prostaglandins, thymol, camphor, extracts or other products of vegetable and animal origin, e.g. evening primrose oil, borage oil or currant seed oil, fish oils, cod-liver oil or also ceramides and ceramide-like compounds and so on.

It is also advantageous to choose the active ingredients from the group of refatting substances, for example purcellin oil, Eucerit® and Neocerit®.

The list of said active ingredients or active ingredient combinations which can be used in the Pickering emulsions according to the invention is not of course intended to be limiting.

Cosmetic and dermatological preparations which are in the form of a sunscreen are also favourable. These preferably comprise at least one UV-A filter substance and/or at least one UV-B filter substance and/or at least one further inorganic pigment selected from the group consisting of the oxides of iron, zirconium, silicon, manganese, aluminium, cerium and mixtures thereof and also modifications in which the oxides are the active agents.

For the purposes of the present invention, it is, however, also advantageous to provide such cosmetic and dermatological preparations whose main purpose is not protection against sunlight, but which nevertheless comprise substances which protect against UV. For example, UV-A and UV-B filter substances are commonly incorporated into day cream.

The preparations according to the invention can advantageously comprise further substances which absorb UV radiation in the UV-B range, the total amount of filter substances being, for example, from 0.1% by weight to 30% by weight, preferably from 0.5 to 15% by weight, based on the total weight of the

preparations, in order to provide cosmetic preparations which protect the hair and/or the skin from the whole range of ultraviolet radiation.

If the emulsions according to the invention contain UV-B filter substances, the latter may be oil-soluble or water-soluble. Examples of oil-soluble

5 UV-B filters which are advantageous according to the invention are:

- 3-benzylidenecamphor derivatives, preferably 3-(4-methylbenzyl-idene)camphor, 3-benzylidenecamphor;
- 4-aminobenzoic acid derivatives, preferably 2-ethylhexyl 4-(dimethylamino)benzoate, amyl 4-(dimethylamino)benzoate;
- 10 • esters of cinnamic acid, preferably 2-ethylhexyl 4-methoxycinnamate, isopentyl 4-methoxycinnamate;
- esters of salicylic acid, preferably 2-ethylhexyl salicylate, 4-isopropylbenzyl salicylate, homomenthyl salicylate;
- 15 • derivatives of benzophenone, preferably 2-hydroxy-4-methoxybenzophenone, 2-hydroxy-4-methoxy-4'-methylbenzophenone, 2,2'-dihydroxy-4-methoxybenzophenone;
- esters of benzalmalonic acid, preferably di(2-ethylhexyl) 4-methoxybenzalmalonate;
- triazine derivatives symmetrically or unsymmetrically substituted with regard to the C₃ axis of the parent triazine substance, preferably tris(2-ethylhexyl) 4,4',4''-(1,3,5-triazine-2,4,6-triyltriimino)trisbenzoate (symmetrical) and 2,4-bis[[4-(2-ethylhexyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine, 2,4-bis[[4-(3-sulphonato)-2-hydroxypropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine sodium salt, 2,4-bis[[4-(3-(2-propyloxy)-2-hydroxypropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine, 2,4-bis[[4-(2-ethylhexyloxy)-2-hydroxy]phenyl]-6-[4-(2-methoxyethylcarboxyl)phenylamino]-1,3,5-triazine, 2,4-bis[[4-(3-(2-propyloxy)-2-hydroxypropyloxy)-2-hydroxy]phenyl]-6-[4-(2-ethylcarboxyl)phenylamino]-1,3,5-triazine, 2,4-bis[[4-(2-ethylhexyloxy)-2-hydroxy]phenyl]-6-(1-methylpyrrol-2-yl)-1,3,5-triazine, 2,4-bis[[4-tris(trimethylsiloxy)silylpropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine, 2,4-bis[[4-(2''-methylpropenyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine, 2,4-bis[[4-(1',1',1',3',5',5',5'-heptamethylsiloxy-2-methylpropyloxy)-2-hydroxy]phenyl]-6-(4-methoxyphenyl)-1,3,5-triazine (unsymmetrical),
- 30 • benzotriazole derivatives, preferably 2,2'-methylenebis(6-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol)
- 35 • and UV filters bonded to polymers.

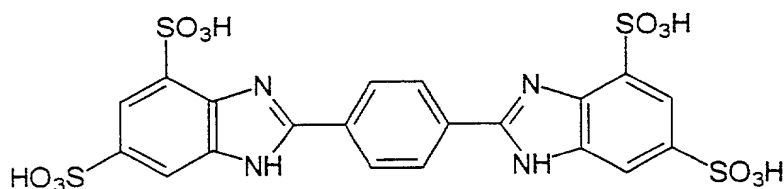
Examples of advantageous water-soluble UV-B filter substances are:

- salts of 2-phenylbenzimidazole-5-sulphonic acid, such as its sodium, potassium or its triethanolammonium salt, and also the sulphonic acid itself;
- sulphonic acid derivatives of 3-benzylidenecamphor, such as e.g. 4-(2-oxo-3-bornylidenemethyl)benzenesulphonic acid, 2-methyl-5-(2-oxo-3-bornylidenemethyl)sulphonic acid and their salts.

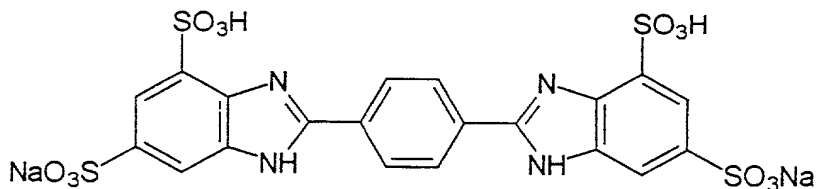
The list of said UV-B filters, which may be used in the Pickering emulsions according to the invention, is of course not intended to be limiting.

It can also be advantageous to use, in the Pickering emulsions according to the invention, UV-A filters which have hitherto been customarily present in cosmetic preparations. These substances are preferably derivatives of dibenzoylmethane, in particular 1-(4'-tert-butylphenyl)-3-(4'-methoxyphenyl)propane-1,3-dione and 1-phenyl-3-(4'-isopropylphenyl)propane-1,3-dione.

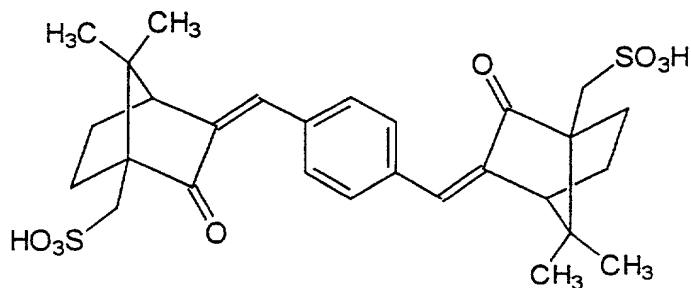
Further advantageous UV-A filter substances are phenylene-1,4-bis(2-benzimidazolyl)-3,3',5,5'-tetrasulphonic acid:



and its salts, particularly the corresponding sodium, potassium or triethanolammonium salts, in particular phenylene-1,4-bis(2-benzimidazolyl)-3,3'-5,5'-tetrasulphonic acid bis-sodium salt:

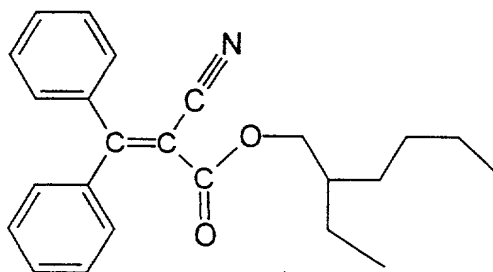


and 1,4-di(2-oxo-10-sulpho-3-bornylidenemethyl)benzene and salts thereof (in particular the corresponding 10-sulphato compounds, in particular the corresponding sodium, potassium or triethanolammonium salt), which is also referred to as benzene-1,4-di(2-oxo-3-bornylidenemethyl-10-sulphonic acid) and is characterized by the following structure:



Advantageous UV filter substances are also so-called broad-band filters, i.e. filter substances which absorb both UV-A and UV-B radiation.

A broad-band filter which is to be used advantageously is, for example, ethylhexyl 2-cyano-3,3-diphenylacrylate (octocrylene), which is obtainable from BASF under the name Uvinul® N 539 and is characterized by the following structure:



Preparations which contain UV-A filters or so-called broad-band filters are also provided by the invention. The amounts which may be used are as for the UV-B combination.

Preparations according to the invention can also be advantageously used as bases for cosmetic deodorants and antiperspirants, so that a particular embodiment of the present invention relates to Pickering emulsions as bases for cosmetic deodorants.

Cosmetic deodorants are used to control body odour which arises when fresh sweat, which is in itself odourless, is decomposed by microorganisms. Customary cosmetic deodorants are based on various modes of action.

In antiperspirants, astringents, mainly aluminium salts, such as aluminium hydroxychloride (aluchlorhydrate), reduce sweat production.

The use of antimicrobial substances in cosmetic deodorants can reduce the bacterial flora of the skin. In an ideal situation, only the microorganisms which cause the odour should be effectively reduced. The flow of sweat itself is not influenced as a result, and in ideal circumstances, only microbial decomposition of sweat is stopped temporarily.

The combination of astringents and antimicrobial substances in one and the same composition is also common.

All active ingredients common for deodorants or antiperspirants can advantageously be used, for example odour concealers, such as customary perfume constituents, odour absorbers, for example the phyllosilicates described in Laid-Open Patent Specification DE 40 09 347, of these in particular montmorillonite, kaolinite, illite, beidellite, nontronite, saponite, hectorite, bentonite, smectite, and also, for example, zinc salts of ricinoleic acid. Antibacterial agents are also suitable for incorporation into the W/O emulsion sticks according to the invention. Advantageous substances are, for example, 2,4,4'-trichloro-2'-hydroxydiphenyl ether (Irgasan), 1,6-di(4-chlorophenylbiguanido)hexane (chlorhexidine), 3,4,4'-trichlorocarbanilide, quaternary ammonium compounds, oil of cloves, mint oil, thyme oil, triethyl citrate, farnesol (3,7,11-trimethyl-2,6,10-dodecatrien-1-ol), and the active ingredients or active ingredient combinations described in Patent Laid-Open Specifications DE-37 40 186, DE-39 38 140, DE-42 04 321, DE-42 29 707, DE-43 09 372, DE-44 11 664, DE-195 41 967, DE-195 43 695, DE-195 43 696, DE-195 47 160, DE-196 02 108, DE-196 02 110, DE-196 02 111, DE-196 31 003, DE-196 31 004 and DE-196 34 019, and in Patent Specifications DE-42 29 737, DE-42 37 081, DE-43 24 219, DE-44 29 467, DE-44 23 410 and DE-195 16 705. Sodium hydrogencarbonate can also be used advantageously.

The list of said active ingredients or active ingredient combinations which can be used in the Pickering emulsions according to the invention is not of course intended to be limiting.

The cosmetic deodorants according to the invention can be present in the form of hydrous, cosmetic preparations which can be applied from normal containers.

The amount of antiperspirant active ingredients or deodorants (one or more compounds) in the preparations is preferably 0.01 to 30% by weight, particularly preferably 0.1-20% by weight, in particular 1-10% by weight, based on the total weight of the preparation.

5 The sticks according to the invention are also excellent vehicles for dermatological active ingredients. In particular, they are suitable as carriers for substances effective against acne. Acne is a skin disorder of many different forms and causes, characterized by non-inflamed and inflamed bumps, originating from blocked hair follicles (comedones) which can lead to the formation of pustules,
10 abscesses and scars. The most frequent is Acne vulgaris, which occurs mainly in puberty. Causative conditions for Acne vulgaris are the keratinization and blocking of the hair follicle opening, the production of sebum, which is dependent on the level of male sex hormones in the blood, and the production of free fatty acids and tissue-damaging enzymes by bacteria (*Propionibacterium acnes*).

15 It is therefore advantageous to add to the preparations according to the invention substances effective against acne which are effective, for example, against *Propionibacterium acnes* (for example those described in DE-A 42 29 707, DE-A 43 05 069, DE-A 43 07 976, DE-A 43 37 711, DE-A 43 29 379), but also other substances which are effective against acne, for example all-trans-retinoic acid, 13-
20 cis-retinoic acid and related substances) or antiinflammatory active ingredients, for example batyl alcohol (α -octadecyl glyceryl ether), selachyl alcohol (α -9-octadecenyl glyceryl ether), chimyl alcohol (α -hexadecyl glyceryl ether) and/or bisabolol, and antibiotics and/or keratolytics.

 Keratolytics are substances which soften keratinized skin (such as e.g.
25 warts, corns, calluses and the like) so that it can be removed more easily or so that it falls off or peels off.

 All of the common substances effective against acne can be used advantageously, in particular benzoyl peroxide, bituminosulphonates (ammonium, sodium and calcium salts of shale oil sulphonic acids), salicylic acid (2-
30 hydroxybenzoic acid), miconazole (1-[2-(2,4-dichlorobenzyloxy)-2-(2,4-dichlorophenyl)ethyl]imidazole) and derivatives, adapalene (6-[3-(1-adamantyl)-4-methoxyphenyl]-2-naphthoic acid), azelaic acid (nonanedioic acid), mesulphene (2,7-dimethylthianthrene, C₁₄H₁₂S₂), and aluminium oxide, zinc oxide and/or finely dispersed sulphur.

The amount of antiacne agents (one or more compounds) in the preparations is preferably 0.01 to 30% by weight, particularly preferably 0.1-20% by weight, in particular 1-10% by weight, based on the total weight of the preparation.

- The following examples serve to illustrate the present invention, without
5 limiting it. The numerical values in the examples indicate percentages by weight, based on the total weight of the respective preparations.

Examples

	1	2	3	4	5	6
	W/O	W/O	W/O	O/W	O/W	O/W
Titanium dioxide (Eusolex T2000)		1	6			2
Zinc oxide			4			4
Silica (Aerosil R972)			0.5			
Talc (Talkum Micron)		2				
Boron nitride	5	3	2	5	3	5
Sodium corn starch n-octenyl succinate					1	1
Orgasol® 1002 (Polyamide 6)		1			1	
Caprylic/capric triglyceride	5	5	5	20	20	20
Octyldodecanol	10		5	20		15
Mineral oil	10		5	20		20
Butylene glycol caprylate/caprates		10	10		20	7
C ₁₂₋₁₅ -alkyl benzoate	10	10	10	5	20	
Methylbenzylidenecamphor		3			4	
Octyltriazone		1			4	
Dibenzoylmethane		2			2	
Preservative	0.5	0.5	0.5	0.5	0.5	0.5
Glycerol	5	10	3	5	5	5
Phenylbenzimidazolsulphonic acid		1			2	
Carbomer				0.1		
NaOH 45% strength solution in water		0.3		0.1	0.7	
EDTA solution		1			1	
Water	ad	ad	ad	ad	ad	ad
	100	100	100	100	100	100

Patent Claims

1. Cosmetic or dermatological preparations, which are finely dispersed systems of the oil-in-water or water-in-oil type, comprising
 - 5 1. an oil phase,
 2. an aqueous phase ,
 3. boron nitride which has both hydrophilic and lipophilic properties, i.e. has amphiphilic character, and is dispersible both in water and in oil, and
 4. at most 0.5% by weight of one or more emulsifiers.
- 10 2. Preparations according to Claim 1, characterized in that they are emulsifier-free.
3. Preparations according to one of the preceding claims, characterized in that further cosmetic or pharmaceutical auxiliaries, additives and/or active ingredients are present.
- 15 4. Preparations according to one of the preceding claims, characterized in that the content of boron nitride is between 0.1% by weight and 30% by weight, based on the total weight of the preparations.
5. Preparations according to one of the preceding claims, characterized in that the average particle diameter of the boron nitride particles used is less than
 - 20 20 μm , particularly advantageously less than 15 μm .
6. Preparations according to one of the preceding claims, characterized in that, in addition to boron nitride, further pigments are present, in particular modified polysaccharides and/or microfine polymer particles and/or micronized, inorganic pigments which are chosen from the group of amphiphilic metal oxides, in particular
 - 25 from the group consisting of titanium dioxide, zinc oxide, iron oxides or iron mixed oxides, silicon dioxide or silicates, where the pigments can be present either individually or as a mixture.
7. Preparations according to one of the preceding claims, comprising one or more additives or active ingredients selected from the group consisting of
 - 30 antioxidants and/or UV protectants.
8. Preparations according to one of the preceding claims, comprising one or more additives or active ingredients selected from the group consisting of astringents and/or antimicrobially effective substances and/or substances effective against acne.

Abstract

Cosmetic or dermatological preparations, which are finely dispersed systems of the oil-in-water or water-in-oil type, comprising

1. an oil phase,
2. an aqueous phase ,
3. boron nitride which has both hydrophilic and lipophilic properties, i.e. has amphiphilic character, and thus positions itself at the water/oil interface, and
4. at most 0.5% by weight of one or more emulsifiers

and also

optionally comprising further cosmetic or pharmaceutical auxiliaries, additives and/or active ingredients.

COMBINATION DECLARATION & POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled „**Emulsifier-free finely dispersed systems of the oil-in-water and water-in-oil type**“
the specification of which is attached hereto.

-OR-

was filed on _____ as

Application Serial No. _____ and was amended _____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

198 34 820.7 ✓
(Number)

Germany ✓
(Country)

01/08/1998 ✓
(Day/Month/Yr. Filed)

☒ yes ☐ no

(Number)

(Country)

(Day/Month/Yr. Filed)

☒ yes ☐ no

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

PCT/EP99/05243 ✓
(Application Serial No.)

22/07/1999 ✓
(Filing Date)

pending
(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punished by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named Inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

8 - Kurt G. Briscoe, Reg. No. 33,141; William C. Gerstenzang, Reg. No. 27,552; Carmella A. O'Gorman, Reg. No. 33,749; and Stephen G. Ryan, Reg. No. 39,015 all of 660 White Plains Road, Tarrytown, New York 10591-5144; William R. Robinson, Reg. No. 27,224; Mark A. Montana, Reg. No. 44,948 all of 721 Route 202-206, Bridgewater, New Jersey 08807; Lorimer P. Brooks, Reg. No. 15,155; Davy E. Zoneraich, Reg. No. 37,267 all of 805 Third Avenue, 9th Floor, New York, NY 10022, my attorneys with full power of substitution and revocation.

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Post Office Address		
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Residence	Citizenship	
Post Office Address		
Full Name Of Sixth Inventor	Inventor's Signature	Date
Residence	Citizenship	
Post Office Address		
Full Name Of Seventh Inventor	Inventor's Signature	Date
Residence	Citizenship	
Post Office Address		

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